



**Software S- auto FIMEP for AEV test
in accordance to EN.**

INTRODUCTION

This is a manual of the software specially developed for use with the type P100S machine.

The software is divided in two parts; one part to measure and pilot the machine and a second part who uses Excel to produce a report.

The software made it possible to use the machine in manual or semi-automatic mode.

For an computer already programmed go to chapter 2 "Starting the programme FIMEP".

Software S-auto FIMEP in accordance to EN.

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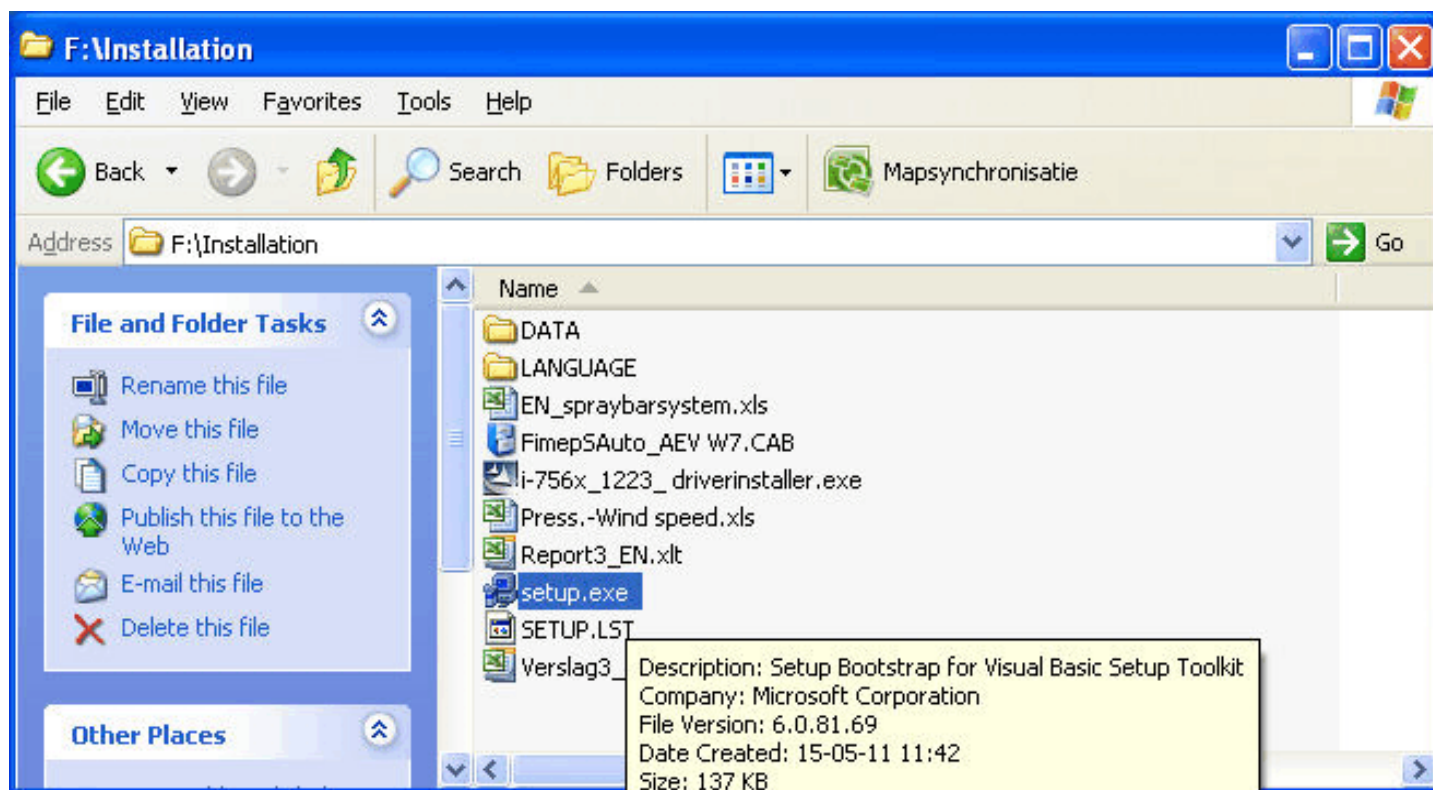
0. Description of the Fimep software.

The software is multi platform and works under Windows 95 / 98 / ME / 2000 and NT and includes two systems: a measuring system under visual basic and an report system under "EXCEL" .

1. New installation or update of an old version

The software is provided on CD-ROM or USB stick, the installation starts automatic.

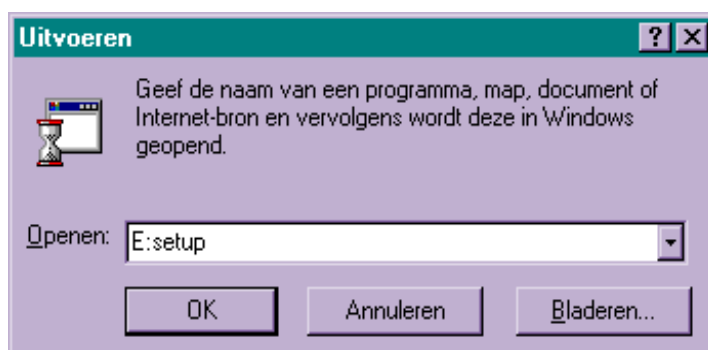
If it don't start go to the "setup.exe" file in the "Installation" menu.



:

In the zone "Openen :" type the letter of the drive followed by (:) et **setup**.
Example: E:setup

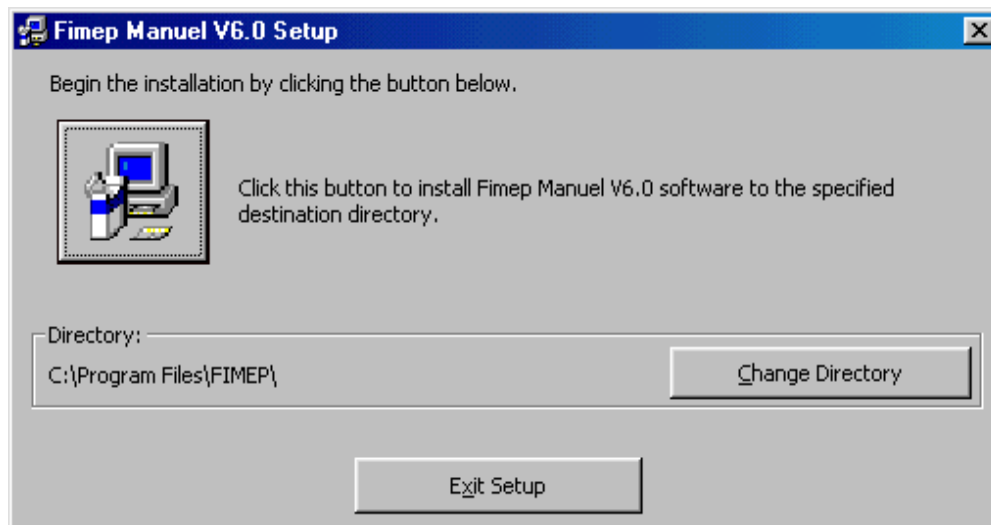
And "OK"



After the reading follows:

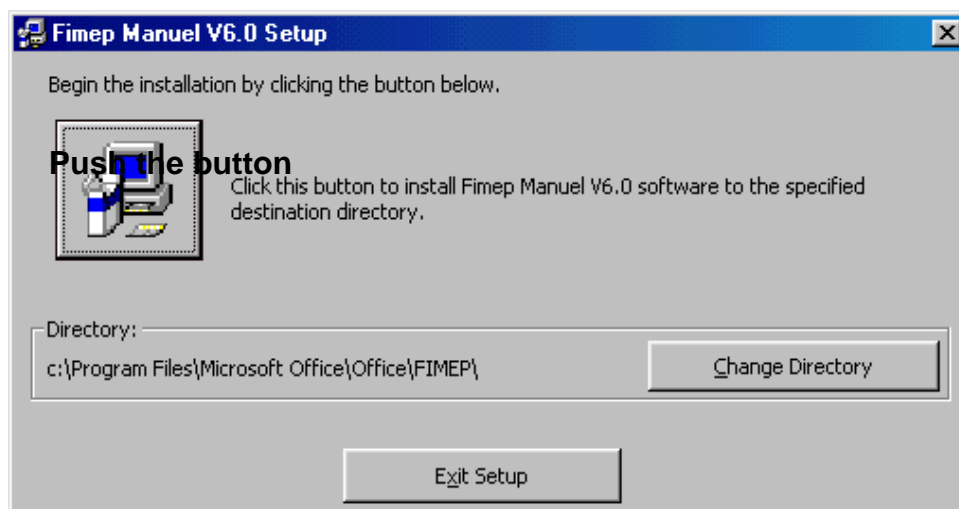


You has to close all Windows programmes and confirm with “OK”



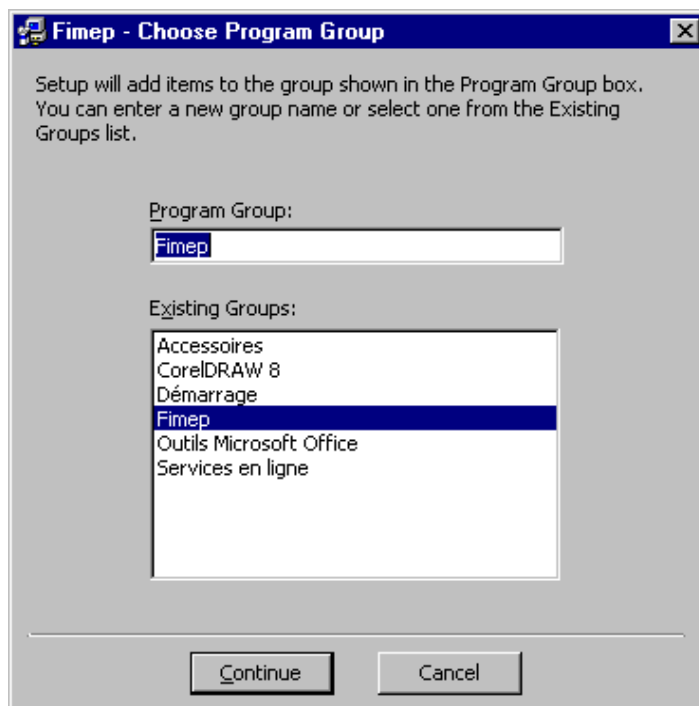
Here is the possibility to change the file where the programme is saved.
Normally it is set to install the programme in the directory **C:\AWW FIMEP.**

If nothing has to be changed we have:

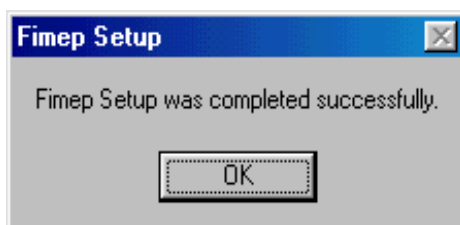


After this when an update is installed the files “data” and “mach param” have not to be overwritten!

The setup asks if the program group Fimep has to be created.



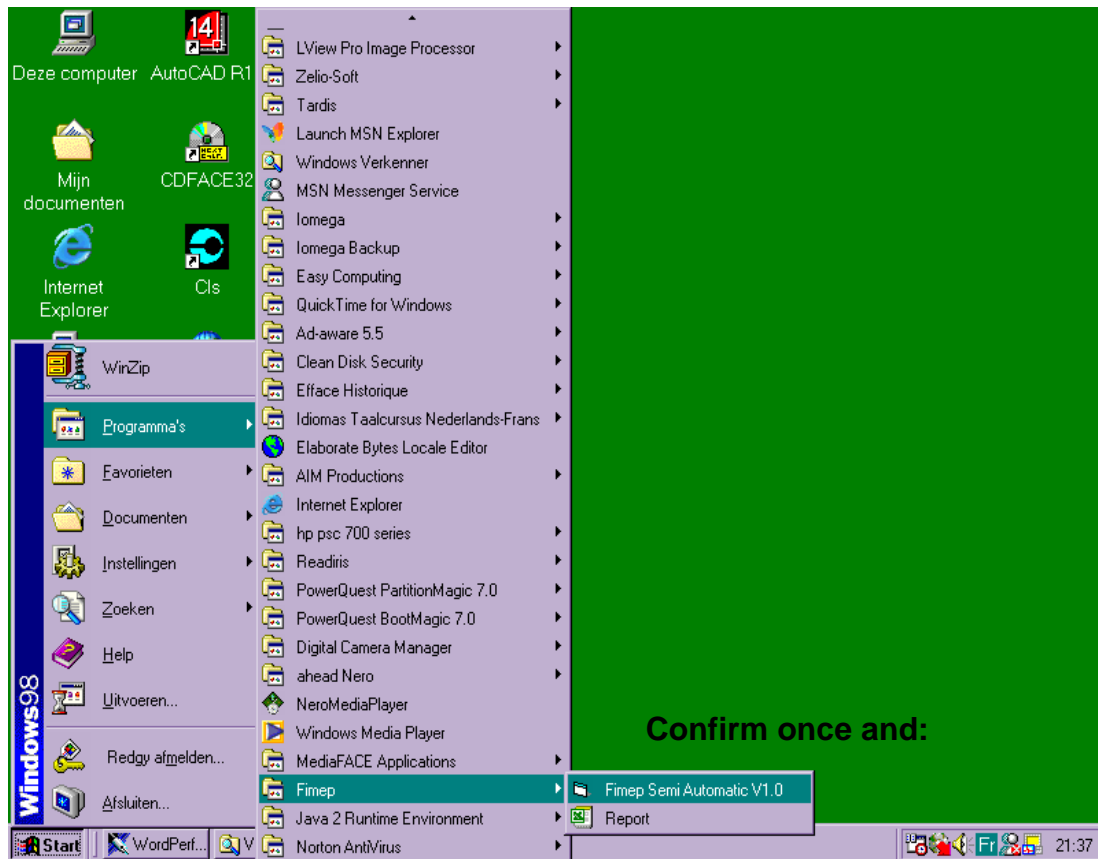
The following message is displayed:



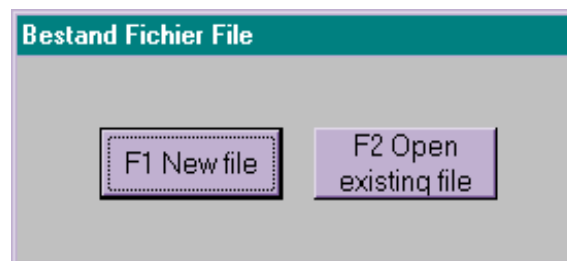
Confirm with “OK” and the software is installed.

2. Start of the programm FIMEP

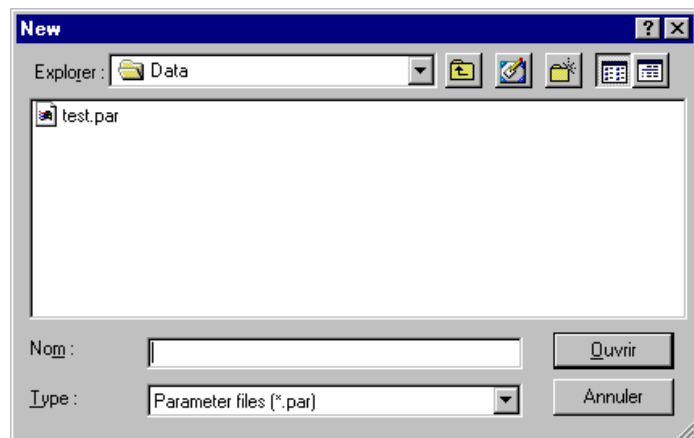
During installation the program group “FIMEP” is added to the “Start” menu - Programmes



This is the start screen of the programme:

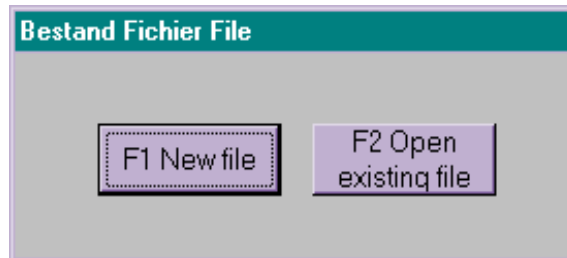


Here it is possible to use a new or an existing file:
If a new file is selected then:



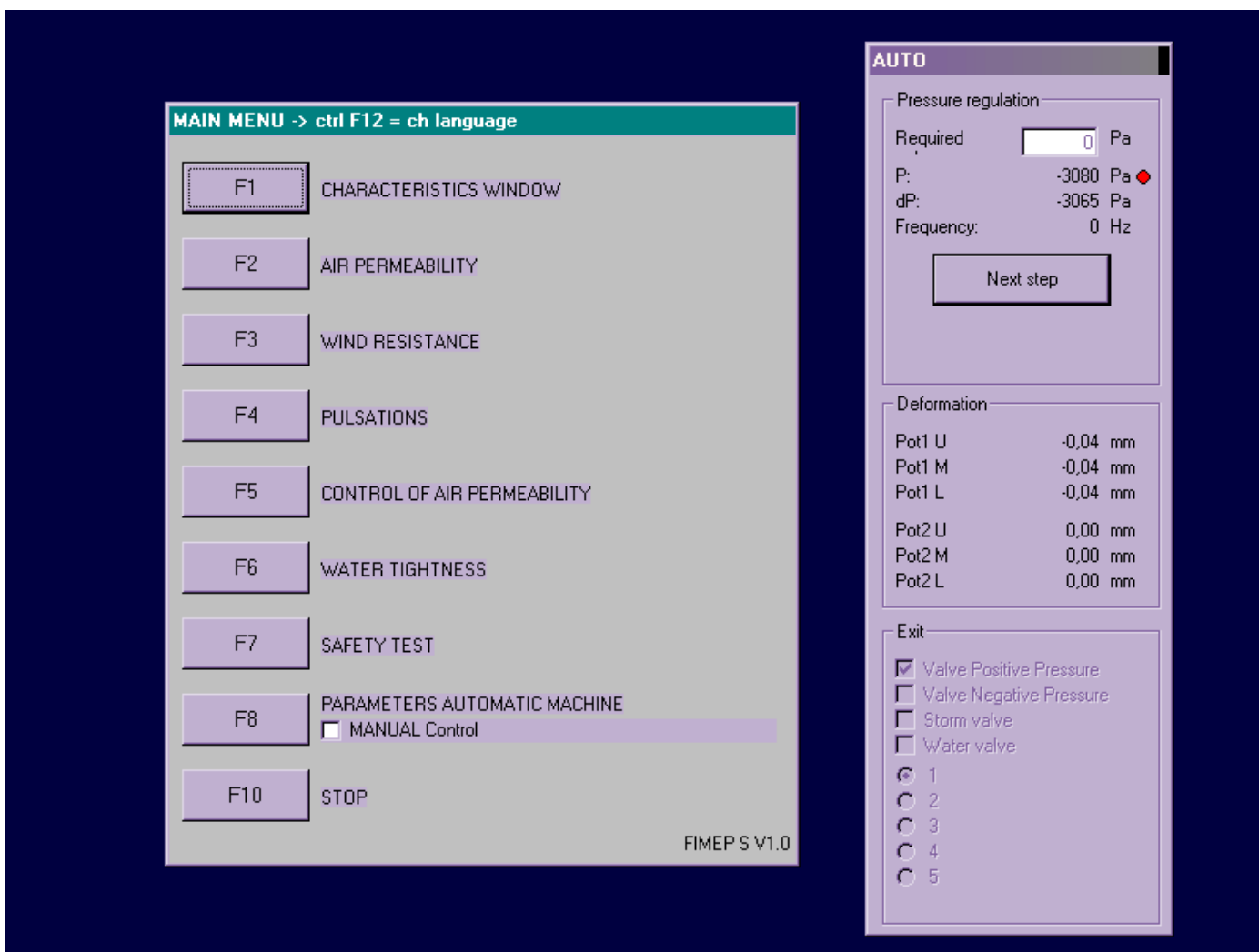
Here a new file name has to be used.

If the option “F2 Open existing file” is chosen:



Then the same window is opened and the existing file is opened.

If there is no communication with the test rig F8 should be pressed and the com port set to



the right value. See description on the user manual.

3. Main menu

In the main menu all the tests according to the European normalisation are displayed in the order of execution.

The main menu always opens in automatic mode! To select manual mode, mark with ✓ on the “MANUAL Control”.

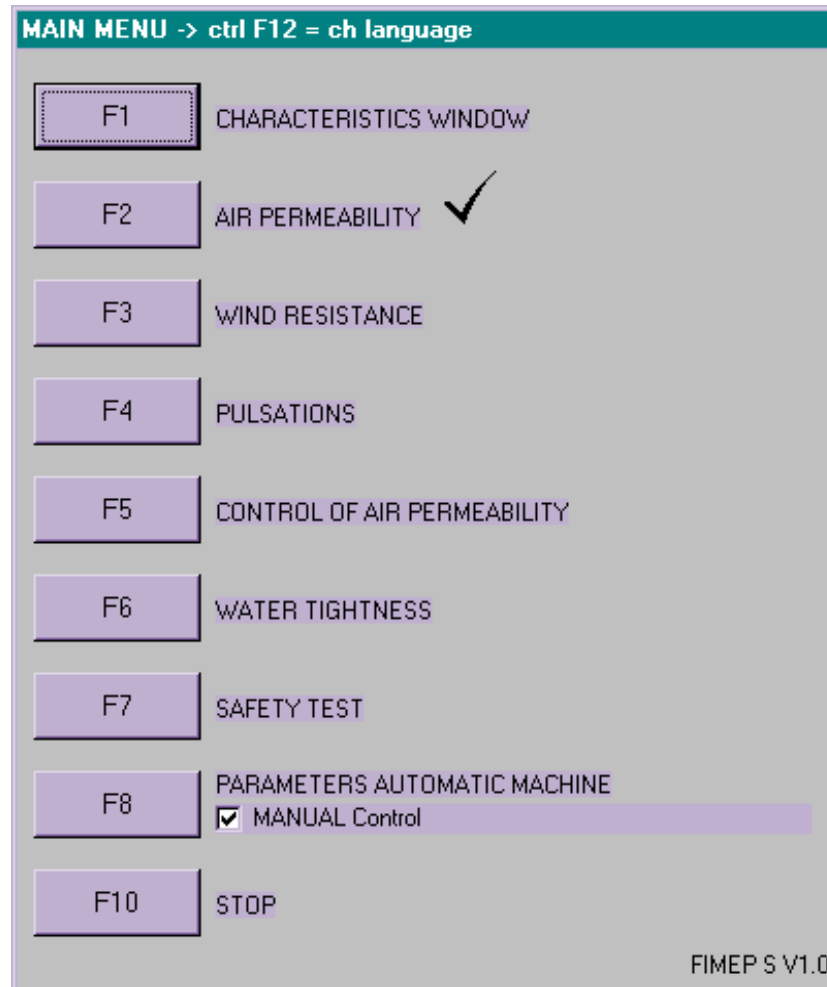
Each time a test sequence is performed a ✓ is marked.

This is an aid to memorise which tests are completely performed.

All measuring results are registered in the measuring file after each test.

The language can be changed by use of the [Ctrl+F12].

A main menu after a partial test:



4. Modules

The different modules in the main menu are accessible by mouse click or with the function buttons.

4.1. F1 Description (Details of the item under test)

This module permit to put a complete description of the window under test in the data file.

The module has several pages:

4.1.1. General

4.1.3. Elements

DESCRIPTION

General | Properties | Elements | Glazing | Classification | Environment | Remarks

| | | | |
|-------------------------|-----|--------------------------|---------|
| Frame / Reinforcement | FR1 | Gasket | G |
| Sash / Reinforcement | SR1 | Drip rail | D |
| False mullion / Reinf. | FR | Sill / other | S/o |
| Mullion / Reinforcement | MR2 | Hardware | Sobinco |
| Seal outer frame | SO | Number of striker plates | 2 |
| Seal sash | SS | Number of hinge points | 2 |
| Glazing bead / gasket | GBG | | |

F1 Ok F2 Initialising F10 Cancel

4.1.4. Glazing

DESCRIPTION

General | Properties | Elements | Glazing | Classification | Environment | Remarks

Type of glass: double

Thickness

| | |
|-------|----|
| Glass | 4 |
| Air | 12 |
| Glass | 4 |

F1 Ok F2 Initialising F10 Cancel

4.1.5. Classification

This is a very important page because it sets the maximum of test for the wind resistance.

The 'DESCRIPTION' dialog box, 'Classification' tab, contains the following settings:

- Air permeability:** C4 (dropdown), Measuring until max. press. (text).

| | |
|----|-----|
| C1 | 150 |
| C2 | 300 |
| C3 | 600 |
| C4 | 600 |
- Resistance to wind:** C3 (dropdown).

| | Measuring | Pulsations | Security |
|----|-----------|------------|----------|
| C1 | 400 | 200 | 600 |
| C2 | 800 | 400 | 1200 |
| C3 | 1200 | 600 | 1800 |
| C4 | 1600 | 800 | 2400 |
| C5 | 2000 | 1000 | 3000 |
- Water tightness:** A (radio button selected), A5 (dropdown).
B (radio button), B5 (dropdown).
Spraying A or B until:

| | |
|------|----------------------|
| 1 | without pressure |
| 2 | 50 |
| 3 | 100 |
| 4 | 150 |
| 5 | 200 |
| 6 | 250 |
| 7 | 300 |
| 8 | 450 |
| 9 | 600 |
| Exxx | by steps of 150 Pa + |

Buttons: F1 Ok, F2 Initialising, F10 Cancel.

Normally for the air permeability we always go to 600 Pa (C4); for the wind resistance however it is important to choose the level of performance asked according to the EN 12210 classification.

In automatic mode the machine wont go beyond the selected level!

For the water infiltration test the method A is most used (spray bar at 24°) and we have to select the maximum pressure.

4.1.6. Environment

The 'DESCRIPTION' dialog box, 'Environment' tab, contains the following settings:

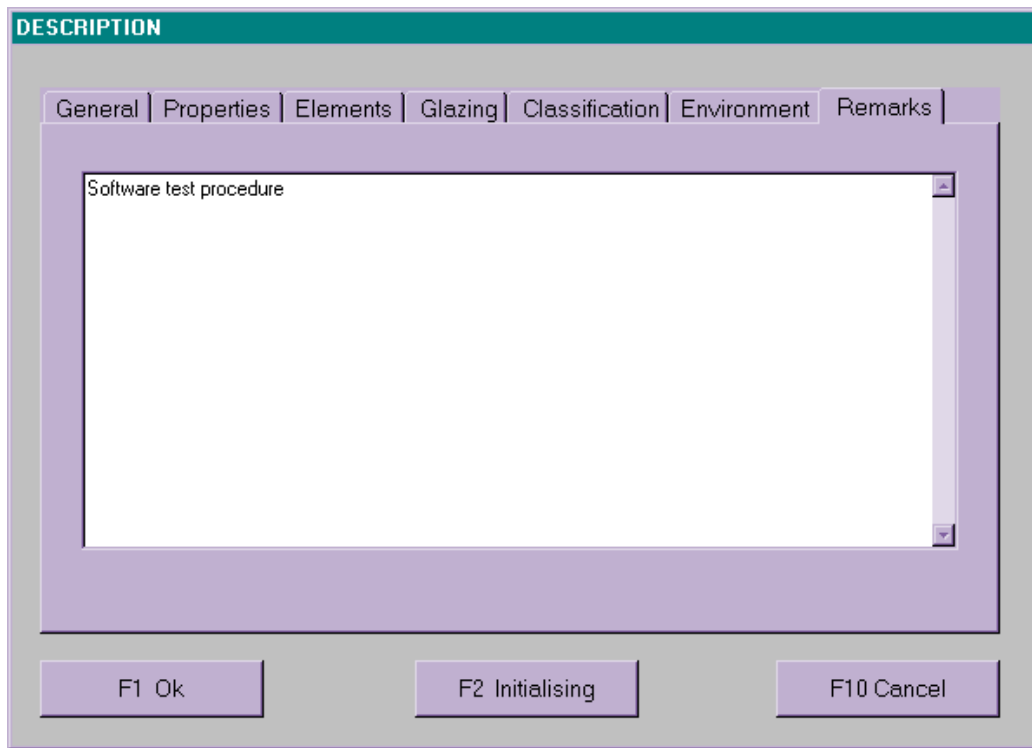
- Temperature: 20 °C
- Atmospheric pressure: 1013 HPa
- Relative humidity: 50 %

Buttons: F1 Ok, F2 Initialising, F10 Cancel.

Here the temperature and atmospheric pressure are needed for calculation; the relative air humidity is

optional but asked by normalisation in the test report.

4.1.7. Remarks



This page is used to put a more textual description if needed.

ATTENTION!

In all module the function buttons are operational:

F1 to memorise readings.

F2 to delete and initialise memory.

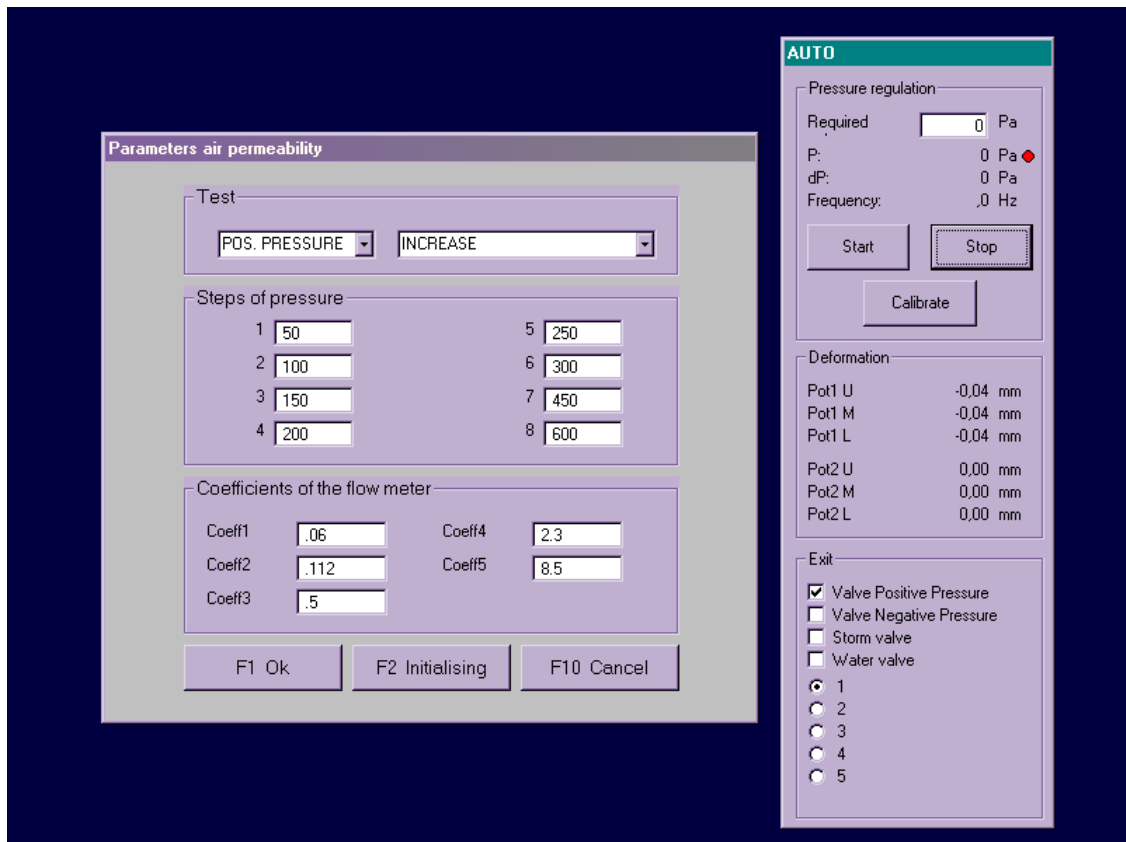
F10 to stop the test.

4.2. Module F2 Air permeability

4.2.1 Parameters

This module defines the different levels of pressure to measure in accordance to EN 1026 "Air permeability - test method". It is possible to change the levels for not normalised tests. The coefficients of the flow measuring system are accessible to eventually change after calibration.

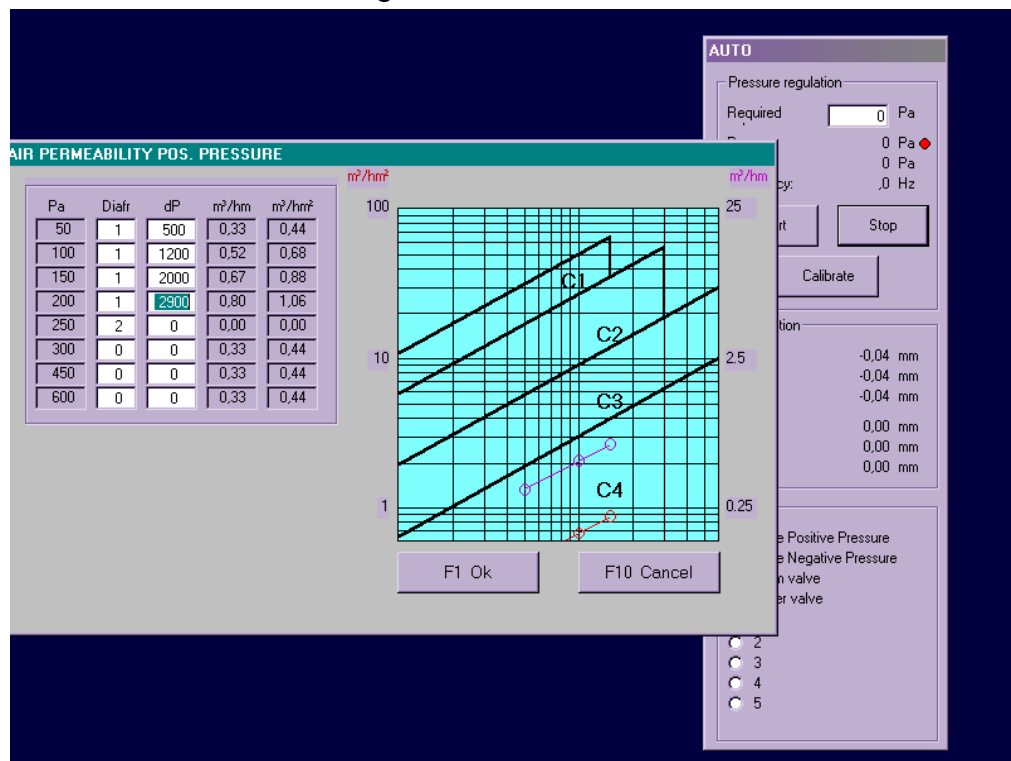
In normalised testing no change is needed.



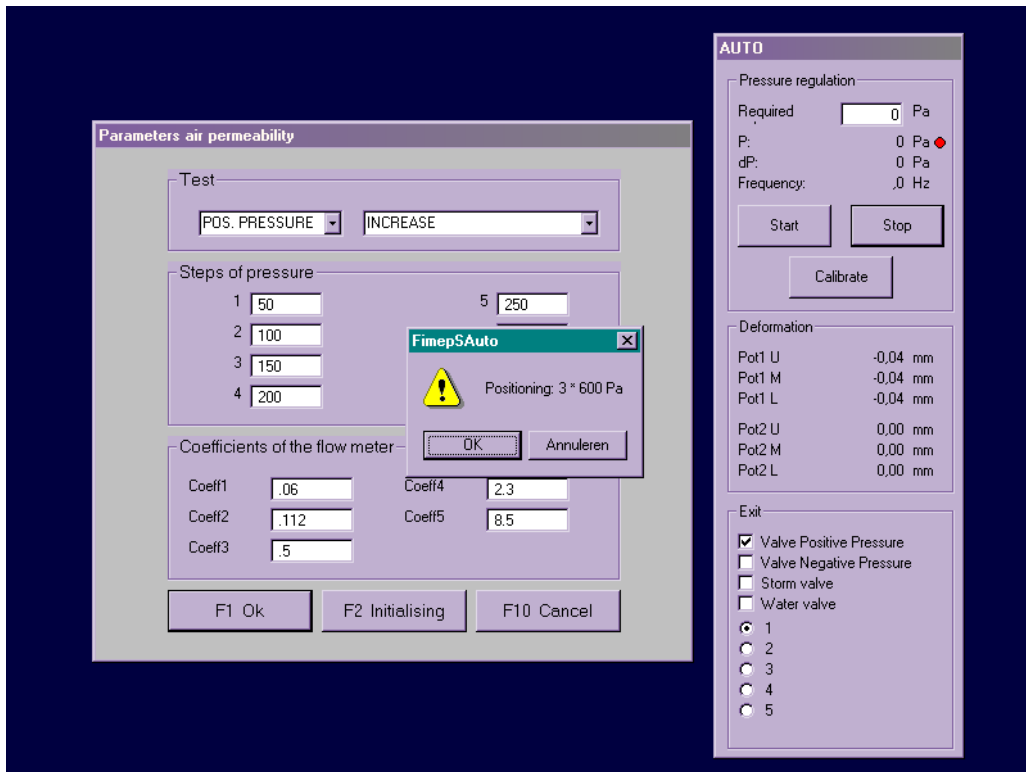
The first time in the test sequence the menu is opened the test “Positive Pressure” is proposed; this is always the first test. The second time “Negative pressure” is proposed. When repeated test are performed with the same measuring file and the test is already performed (✓) positive pressure is always presented, it is to change in the pull-down menu!

After “ F1 OK” in automatic mode the measuring starts:

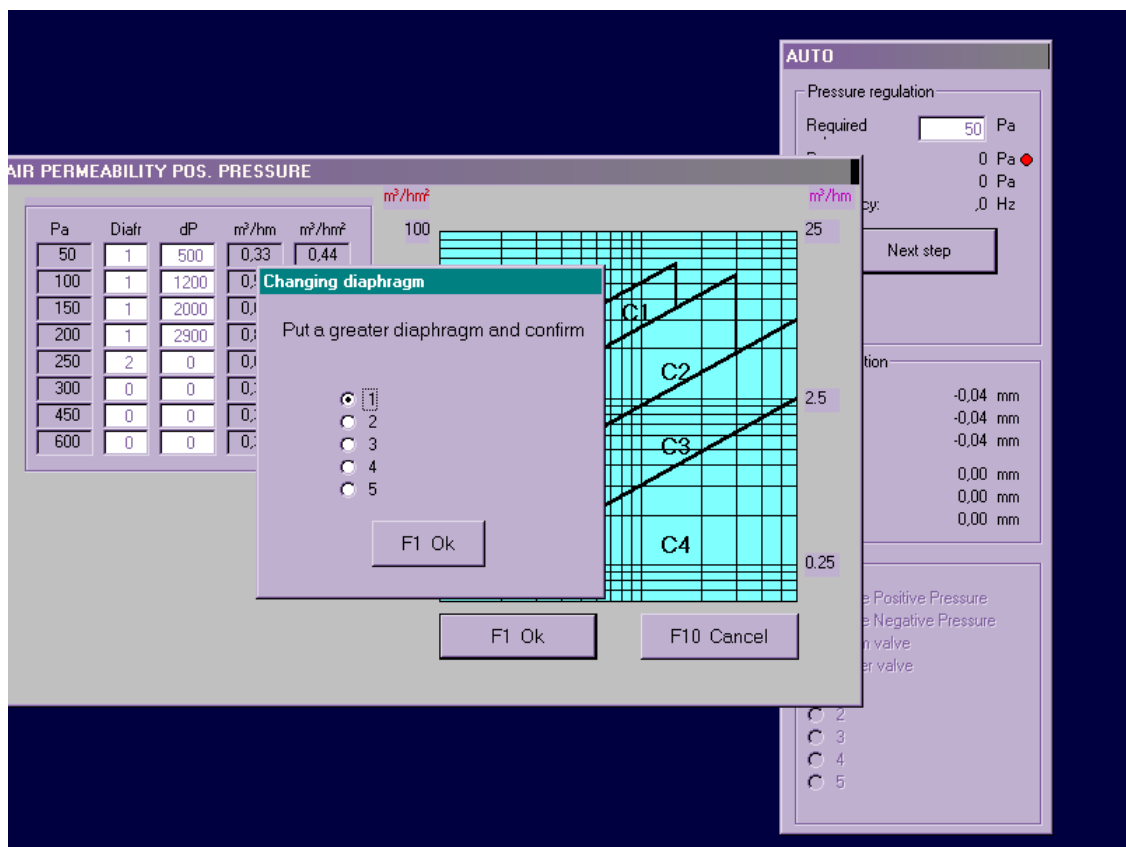
4.2.2. Measuring



In manual mode is asked to position the element:

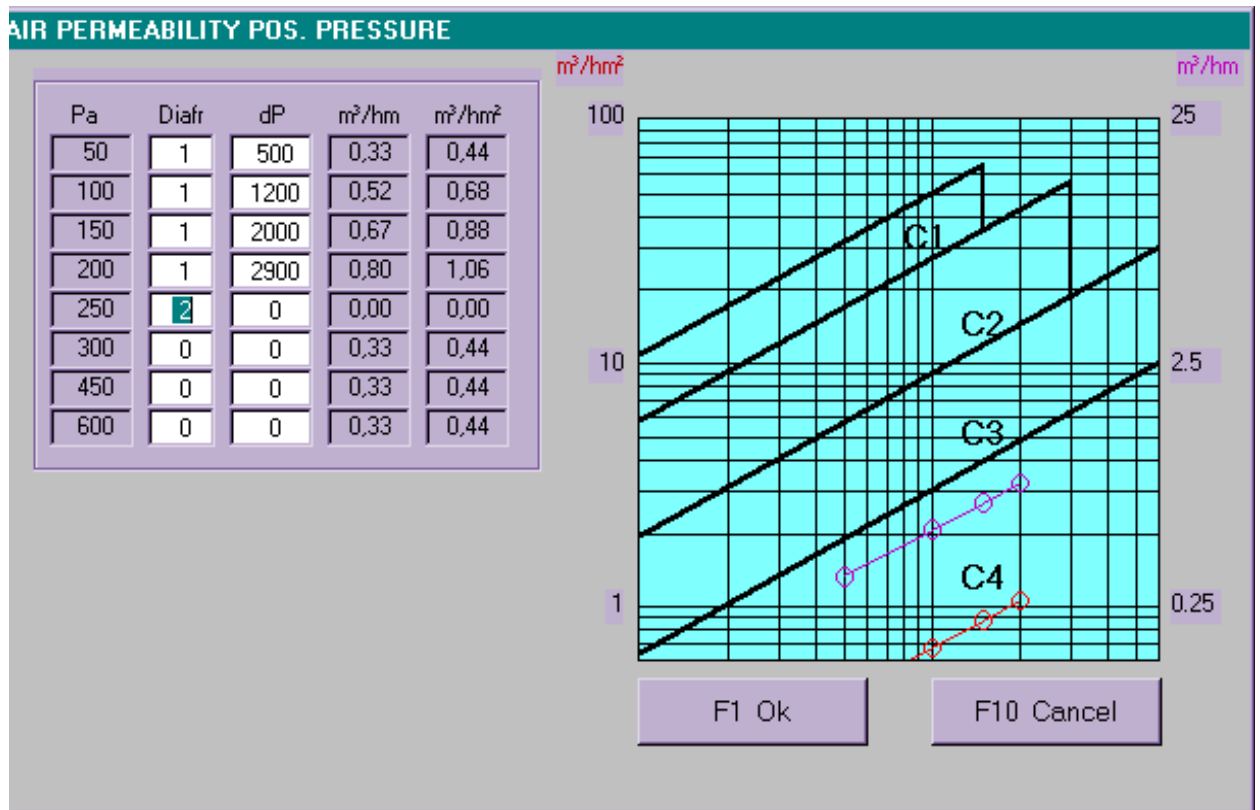


After confirming with “OK” the same window as preceding is displayed and the machine is to operate in manual condition (selecting the required pressure and Start)
 In automatic mode, after setting the window, the diaphragm changing window is displayed and after putting the diaphragm into the holder then mark the number and F1 Ok. The measuring is started.



The way to choose a good diaphragm is to have a dP reading between 50 and 3000 Pa (the range of each diaphragm).

When during the test the frequency of the motor is mounting while the absolute pressure on the window (P) is not mounting then the diaphragm is too small. Then it is usual to put a greater one in. This is possible with the “change diaphragm” button on the control centre (in auto mode).



After the test is completed the machine waits to return to the main menu until confirmed with the “F1 Ok” button!

Interpretation of results:

Relation between the test results based on the overall area and the length of opening joint.

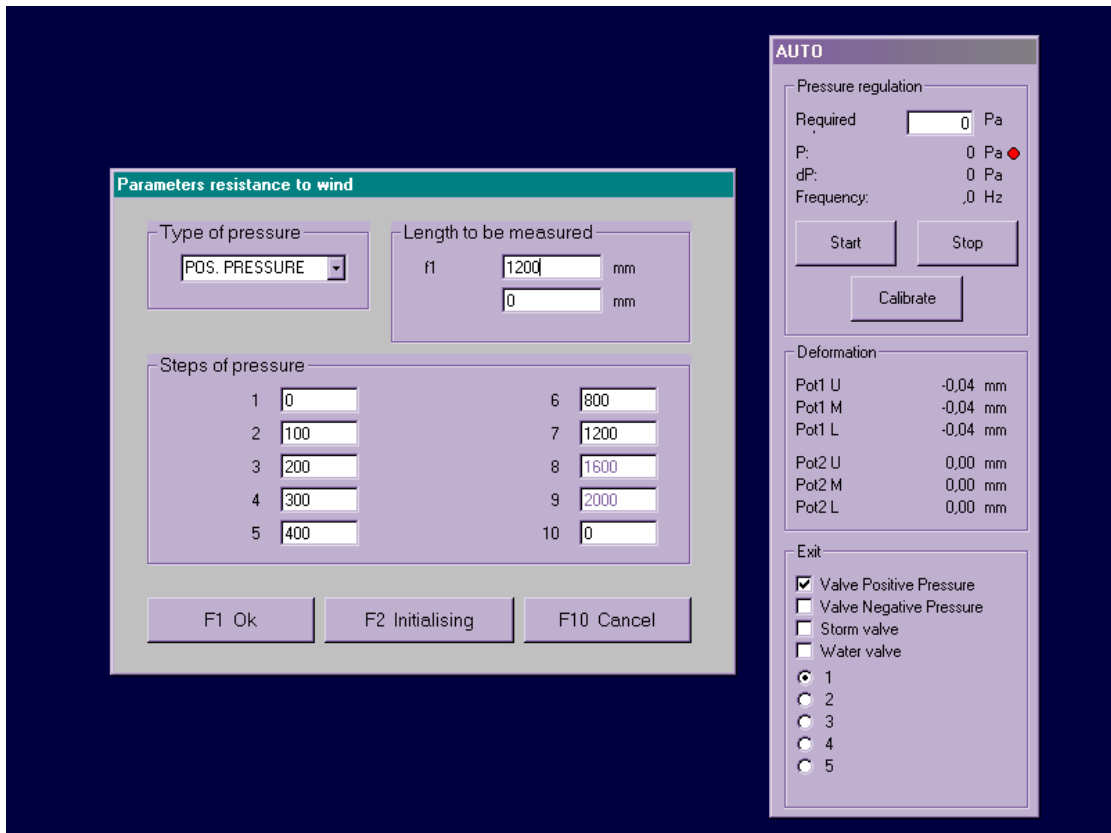
If a specimen obtain results according to the overall area and the length of opening joint, which give:

- the same class. The specimen shall be classified in one and the same class
- two adjacent classes. The specimen shall be classified in the most favourable class (with lower rate)
- a difference of two classes. The specimen shall be classified in the mean class
- a difference of more than two classes. The specimen shall not be classified.

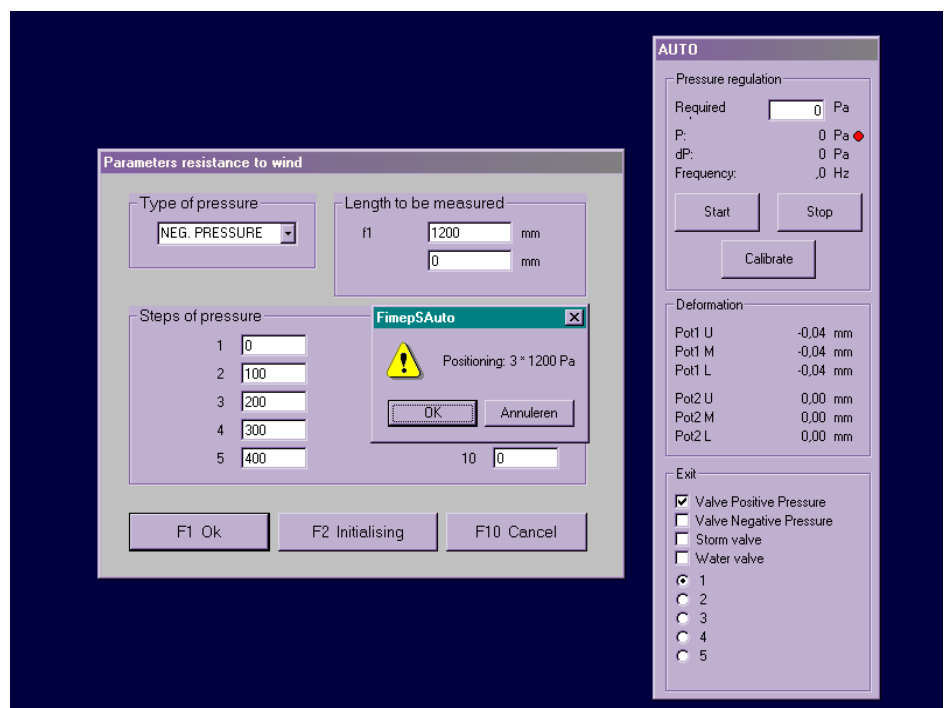
4.3. Module F3 Wind resistance

4.3.1. Measure of deformations parameters.

Measuring is performed by three gauge measurement relative to the frame.



This module defines the different levels of pressure to measure in accordance to EN 1211 “Resistance to wind load - test method”. It is possible to change the levels for not normalised tests. The pressure levels beyond the asked performance (§ 4.1.5.) are not reached. The length between the two external measuring points is to put in mm.

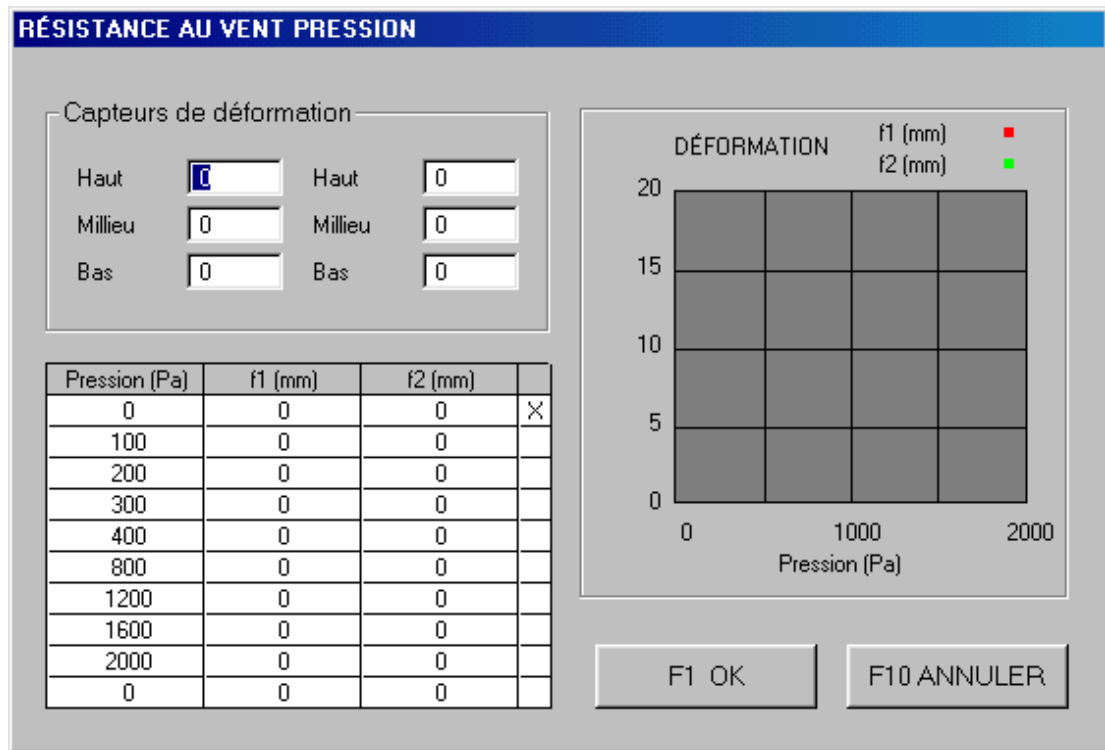


In automatic mode the machine starts the positioning and then the measuring. In manual mode the “positioning” window is displayed.

4.3.2. Measure of deformations

After confirming with “OK” the same window as preceding is displayed and the machine is to operate in manual condition (selecting the required pressure and Start) The measured values are to put in high, middle and lower.

In automatic mode, after setting the window, the measuring is started.



The first time in the test sequence the menu is opened the test “Positive Pressure” is proposed; this is always the first test. The second time “Negative pressure” is proposed. When repeated test are performed with the same measuring file and the test is already performed (✓) positive pressure is always presented, it is to change in the pull- down menu!

While measuring the graph is drawn and displayed.

4.3.3. Classification

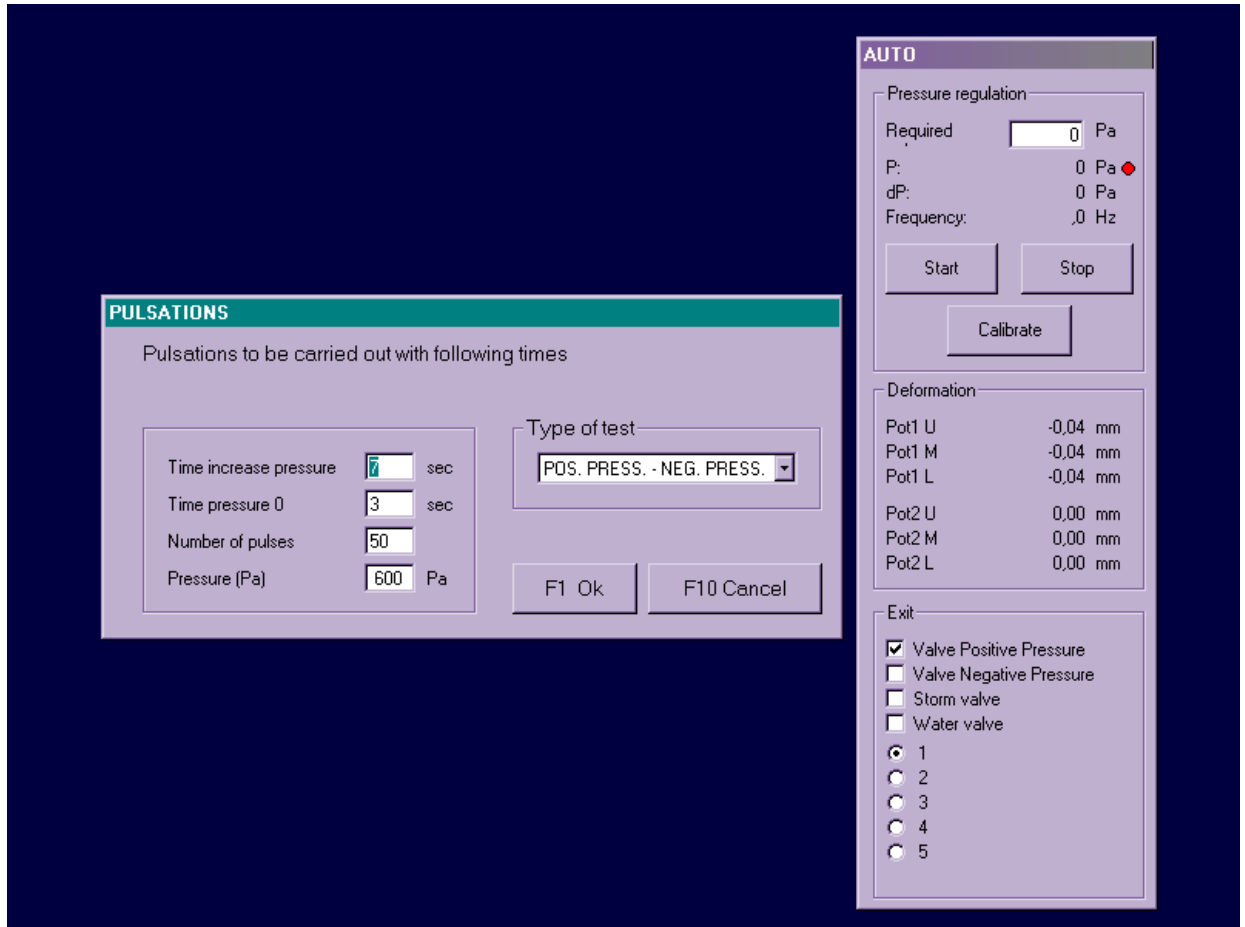
Wind loads and relative frontal deflection shall be combined into one overall classification as indicated in table 1

Table 1

| Wind load class | Relative frontal deflection | | |
|-----------------|-----------------------------|------------|------------|
| | A (<1/150) | B (<1/200) | C (<1/300) |
| 1 | A1 | B1 | C1 |
| 2 | A2 | B2 | C2 |
| 3 | A3 | B3 | C3 |
| 4 | A4 | B4 | C4 |
| 5 | A5 | B5 | C5 |
| Exxxx | AExxxx | BExxxx | CExxxx |

NOTE: In the resistance to wind load classification the number refers to the wind load class.

4.3.4. Repeated pressure test



In accordance to the EN 12211 norm a repeated pressure test has to be executed on the specimen after the deformation test and prior to the control air infiltration test. The test specimen shall be subjected to 50 cycles including negative and positive pressures, with the following features:

- test pressure equal to P2;
- first step is negative, next is positive as is the last of the sequence of 50 impulses;
- variation from - P2 to + P2 shall take ± 7 with time 0 ± 3 s; P2 is maintained ± 7 sec.

After completion of the 50 cycles, open and close the moving parts of the specimen and note damage or functioning defects if any.

4.4. Module F4 Control of air permeability

Same module as module F2 (see § 4.2) but with calculation of the 20% limit.

The specimen shall remain functional and the maximum increase, in air permeability caused by wind resistance tests, shall not be greater than 20% of the maximum permissible air permeability for the air permeability classification previously obtained.

4.5. Module F5 Water tightness

This module is in accordance to the EN 1027 "Watertightness - test method"

It is possible to add a description at the pressure level where infiltration has occurred.

The amount of water in l/min and the remaining time are displayed.

When no infiltration (water leakage) is viewed "none" is mentioned.

WATER TIGHTNESS

| Pressure (Pa) | Time (min) | Infiltration |
|---------------|------------|-----------------|
| 0 | 15 | NONE |
| 50 | 5 | NONE |
| 100 | 5 | NONE |
| 150 | 5 | glass underside |
| 200 | 5 | |
| 250 | 5 | |
| 300 | 5 | |
| 450 | 5 | |
| 600 | 5 | |
| 750 | 5 | |
| 900 | 5 | |
| 1050 | 5 | |
| 1200 | 5 | |

Required flow: 6.0 l/min Time Pa 0: 00:41

F1 Ok F2 Initialising F10 Cancel

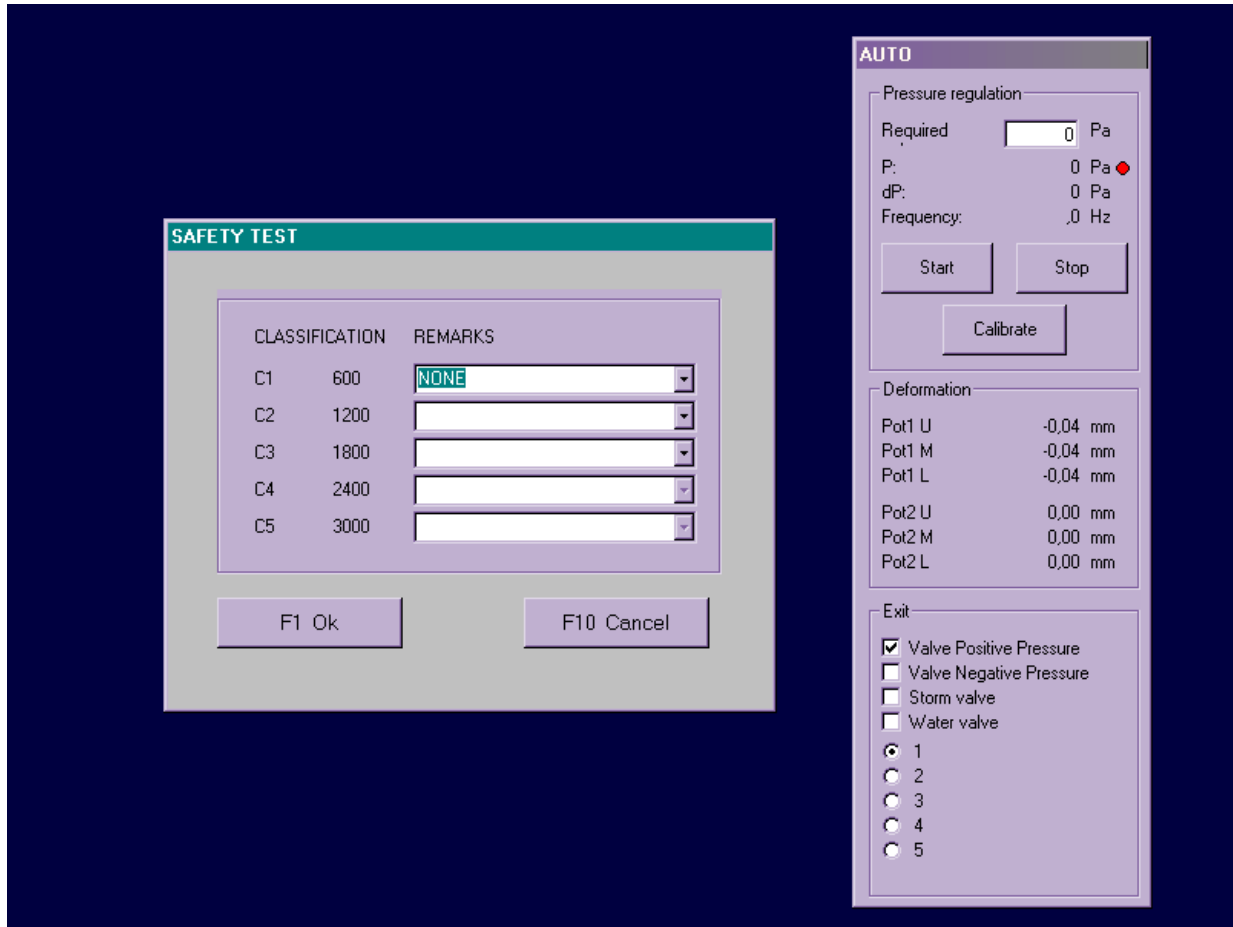
When the maximum desired level is reached then the button “F1 OK” is pushed and the test ends.

In case of other, not normalised tests, it is possible to go on much faster by using the “next step” button.

4.6. Module F6 Safety test

The specimen shall be subjected to one cycle including negative and positive test pressure. After safety test record the eventual damages.

If “NONE” is recorded then the test is considered as OK.



4.7. Module F10 Stop.

Stops the programme and returns to the operating system.

5. Calibration

5.1. Calibration of the airflow, water flow measuring system

The calibration consists in to compare the measuring system with a standard.

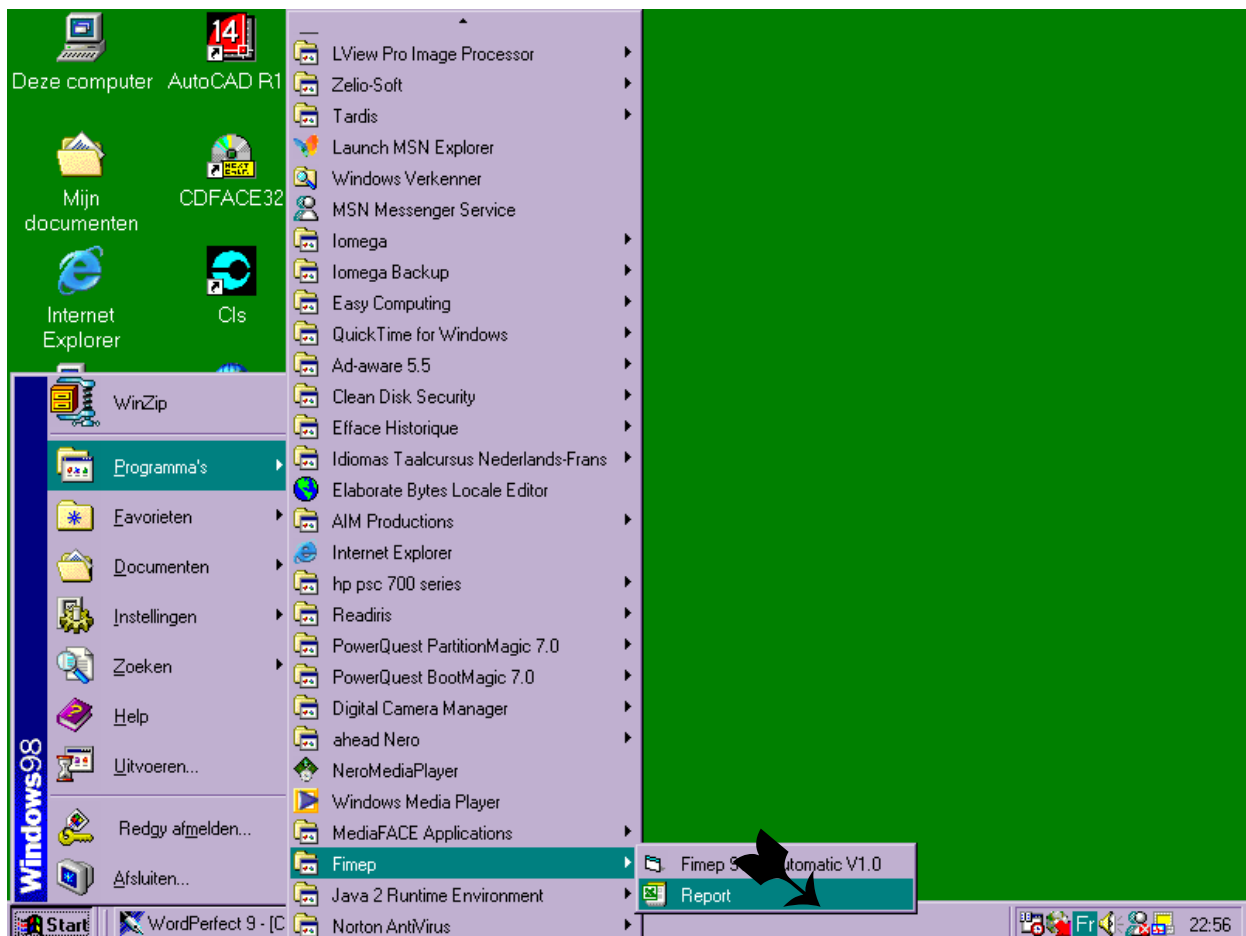
5.2. Calibration of pressure sensors

The calibration consists in to compare the measuring system with a calibrated manometer.

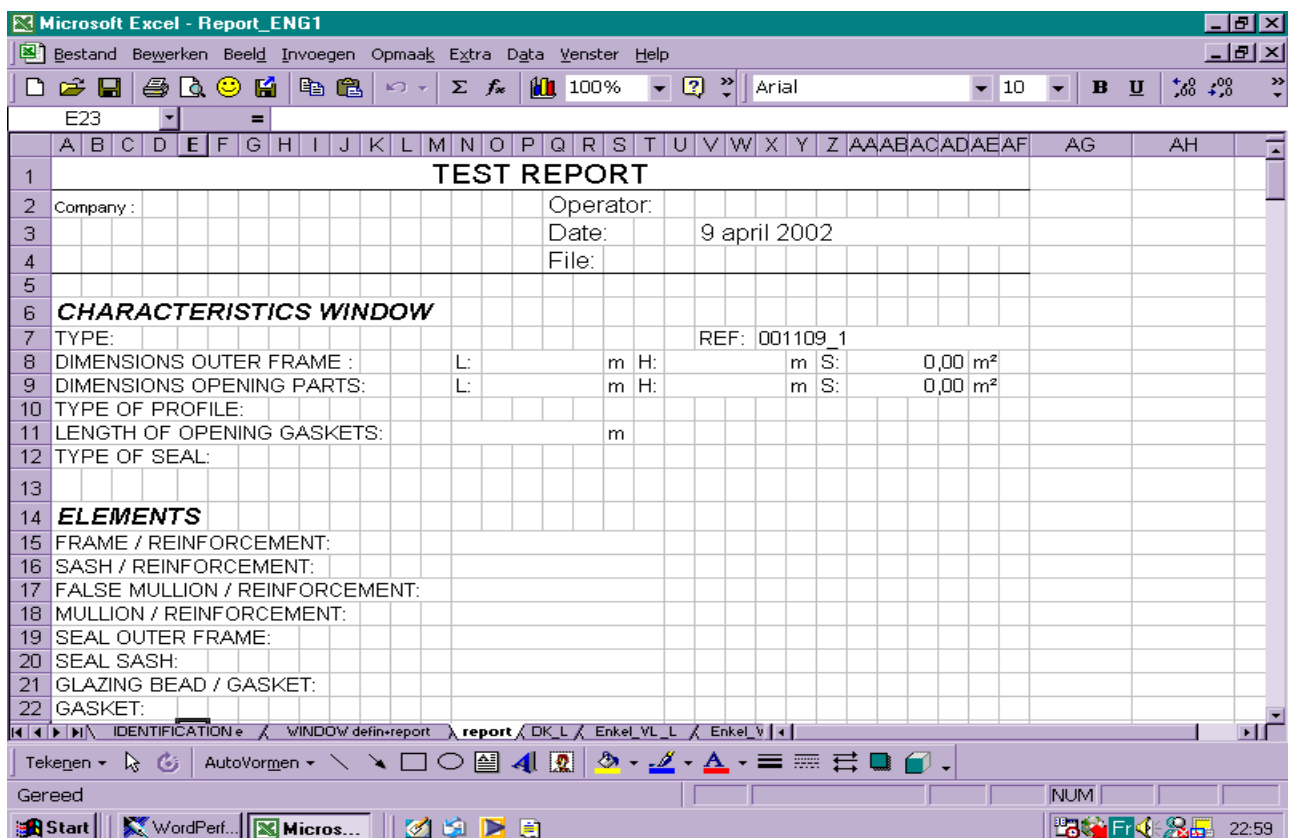
6. Report of tests

6.1. Open the report-type in EXCEL

In "Start", "Programmes" and Fimep open "Report".



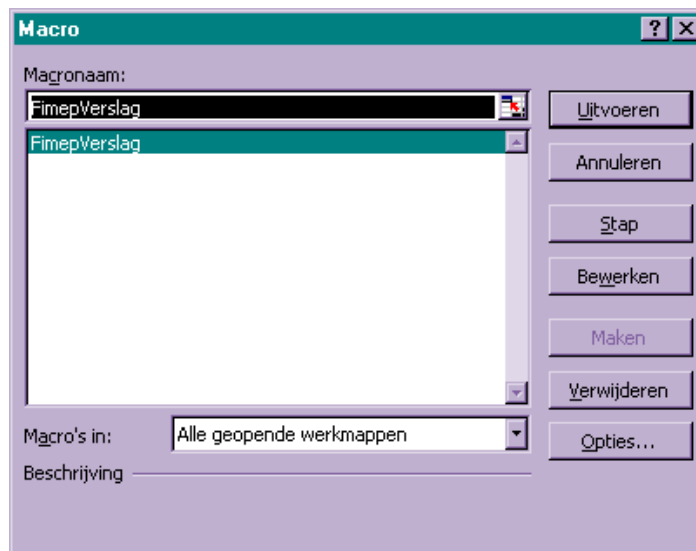
Then an empty mask is opened:



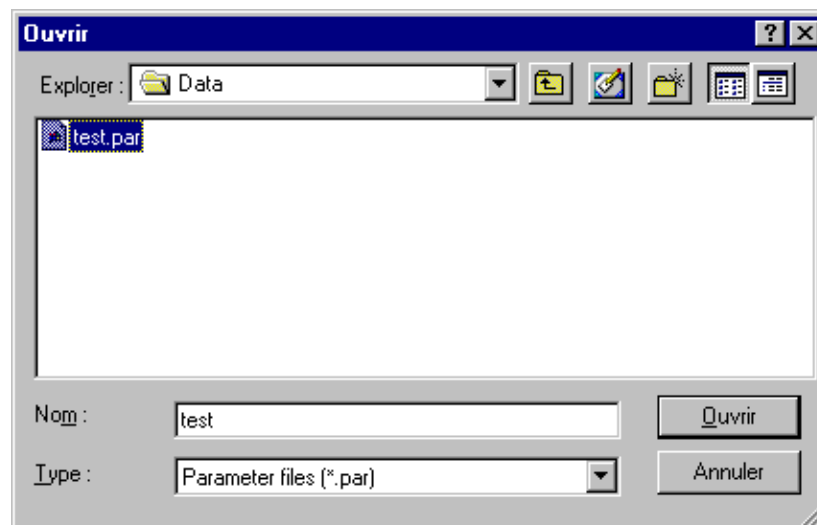
6.2. Recalling the test results

6.2.1. On the computer where test are performed: open “macro” (Extra) Or [Alt + F8].

Start the macro:



He opens the hard drive C ; there is the directory AWW FIMEP; in this directory the sub directory “data”



In this directory are the measuring files.

It is possible to ad a button on the button bar in EXCEL:” ☺ “ who opens the macro and works with it. See the “help” file in Excel.

When the measuring file is opened the test report is completed with the measures.

**A test report always named “Report3_EN1 is created.
Therefore it is recommended to change the name and save it.**

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | AA | AB | AC | AD | AE | AF | | |
|----|---------------------------------|-------|----------------|--------|---|---|---|---|---|---|---|---|-------|-------|---|----|-------|---|----|-------------|----------------|---|---|---|---|---|----|----|----|----|----|----|--|--|
| 1 | RAPPORT D'ESSAI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Société | Fimep | | | | | | | | | | | | | | | | | | Technicien: | Jules | | | | | | | | | | | | | |
| 3 | | | Ommegangstraat | 5 | | | | | | | | | | | | | | | | Date: | 3 août 2029 | | | | | | | | | | | | | |
| 4 | | | 8720 | Wakken | | | | | | | | | | | | | | | | Fichier: | Essai_def.par | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | CARACTERISTIQUES ÉLÉMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | TYPE: | | | | | | | | | | | | | | | | | | | REF: | | | | | | | | | | | | | | |
| 8 | DIMENSIONS EXTÉRIEURES: | | | | | | | | | | | | L: | 2,000 | m | H: | 1,500 | m | S: | 3,00 | m ² | | | | | | | | | | | | | |
| 9 | DIMENSIONS OUVRANTS: | | | | | | | | | | | | L: | 0,000 | m | H: | 0,000 | m | S: | 0,00 | m ² | | | | | | | | | | | | | |
| 10 | TYPE PROFILÉ: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | LONGUEUR DE BATTÉE: | | | | | | | | | | | | 2,000 | | | | | | | | | | | | | | | | | | | | | |

6.2.2. Test report on a different computer.

On this computer the programme “EXCEL” and the mask “Report_EN” must be installed.

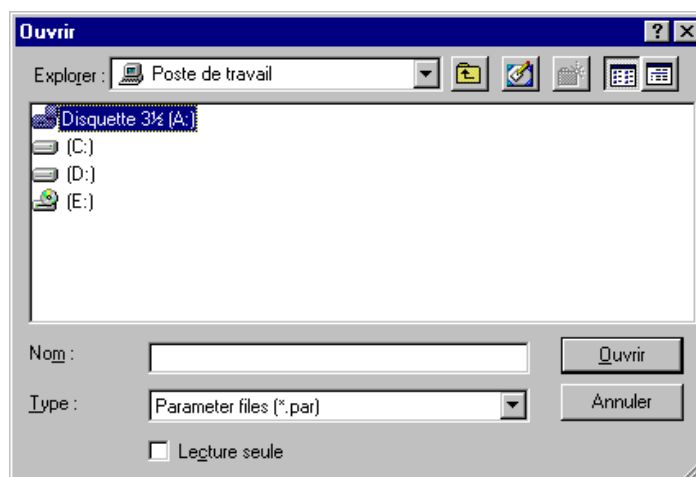
6.2.2.1. Copy of test results

In the directory C:\AWW FIMEP; open the sub directory “data” and transfer the measuring file, by stick or net.

6.2.2.2. Use of the measuring files

SAME PROCEDURE AS § 6.2.1. BUT NOW SEARCH THE FILES BY OPENING DE STICK OR OTHER.

We have this



Now the measuring data are in the report:

6.3. Adapt the report

6.3.1. Date

The system date is always used; it can be modified:

TEST REPORT

Company: Fimep Operator: Tester
 Ommegangstreet 5 Date: 1 april 2000
 8720 Wakken File: test.par

CHARACTERISTICS WINDOW

TYPE: V 1.0 REF: Softtest
 DIMENSIONS OUTER FRAME : L: 1,500 m H: 2,040 m S: 3,06 m²
 DIMENSIONS OPENING PARTS: L: 0,000 m H: 0,000 m S: 0,00 m²
 TYPE OF PROFILE: UPVC
 LENGTH OF OPENING GASKETS: 4,020 m
 TYPE OF SEAL: S1

ELEMENTS

FRAME / REINFORCEMENT: FR1
 SASH / REINFORCEMENT: SR1
 FALSE MULLION / REINFORCEMENT: FR
 MULLION / REINFORCEMENT: MR2
 SEAL OUTER FRAME: SO
 SEAL SASH: SS
 GLAZING BEAD / GASKET: GBG
 GASKET: G

Software test procedure

ATMOSPHERIC PRESSURE: 1013 hPa
 RELATIVE HUMIDITY: 50 %

GENERAL REMARKS

Software test procedure

AIR PERMEABILITY POSITIVE PRESSURE REF: Softtest

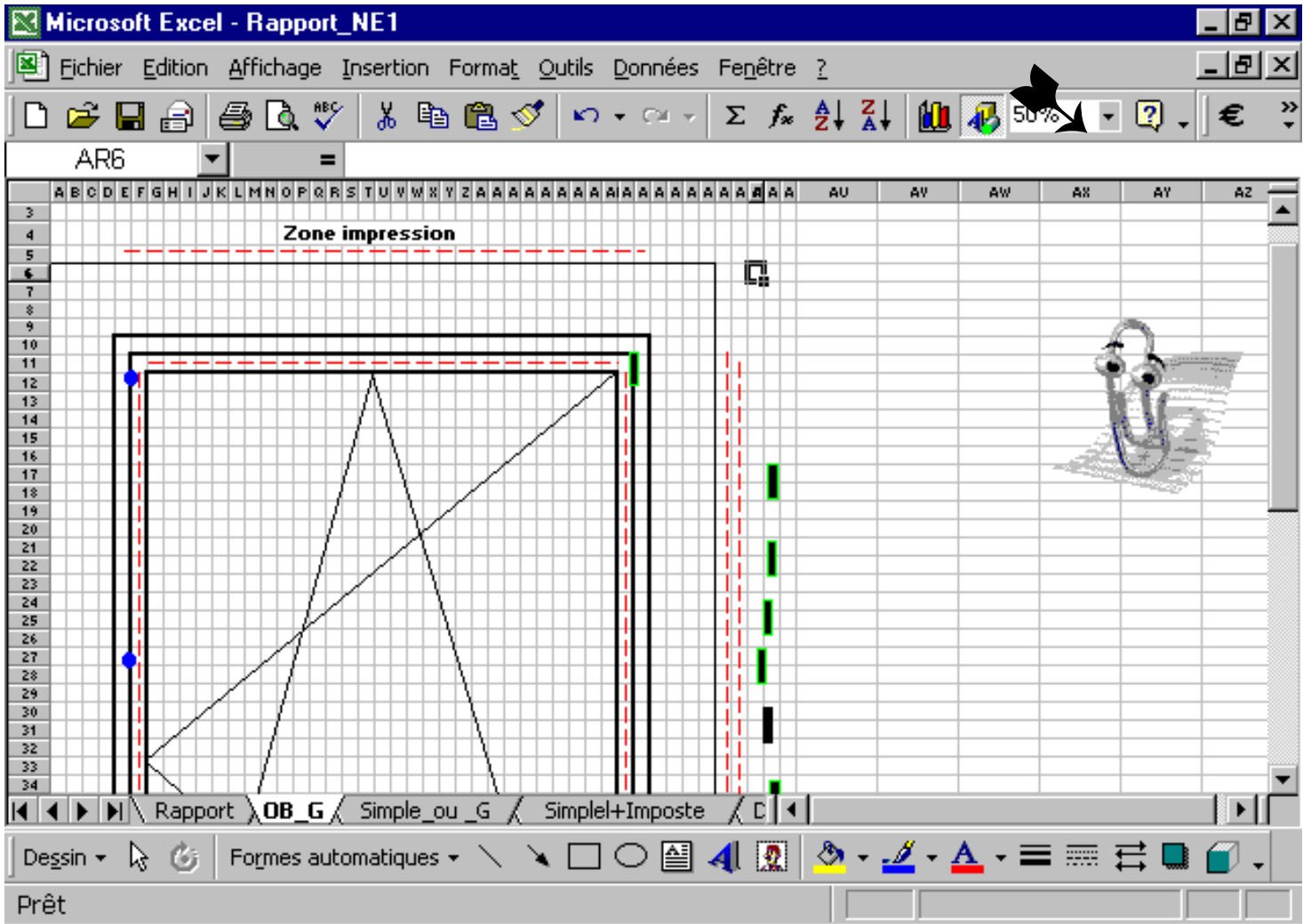
| Pressure (Pa) | Diaphragma K | Delta P | m ³ /hm | m ³ /hm ² | | |
|---------------|--------------|---------|--------------------|---------------------------------|----------|-----|
| 50 | 1 | 500 | 0,33 | 0,44 | 1,334966 | 10 |
| 100 | 1 | 1200 | 0,52 | 0,68 | 2,06812 | 150 |
| 150 | 1 | 2000 | 0,67 | 0,88 | 2,669932 | 150 |
| 200 | 1 | 2900 | 0,80 | 1,06 | 3,215024 | |
| 250 | 2 | 0 | | | 0 | 10 |
| 300 | 0 | 0 | | | 0 | 300 |
| 450 | 0 | 0 | | | 0 | 300 |
| 600 | 0 | 0 | | | 0 | |

6.3.3. Adapt a drawing.

6.3.3.1. Open a type.

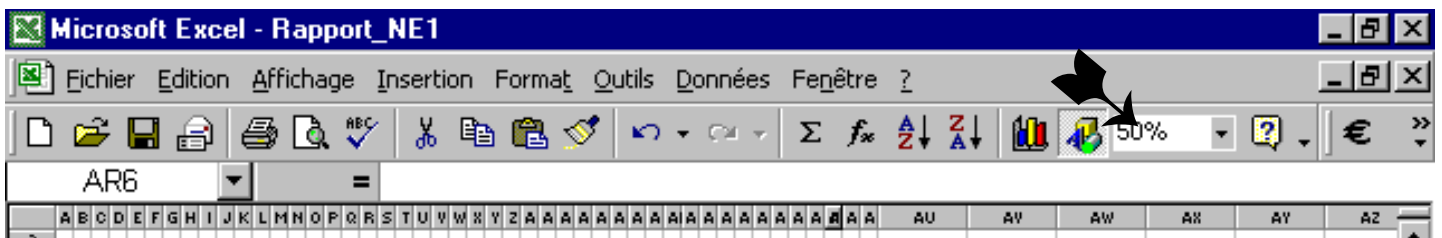
In the report are different type drawings “DK_L”, Simple_opening_G etc....
To change the drawing, use the drawing aid in Excel.

In the work window EXCEL, use the “zoom” function to dimension the drawing on the screen:

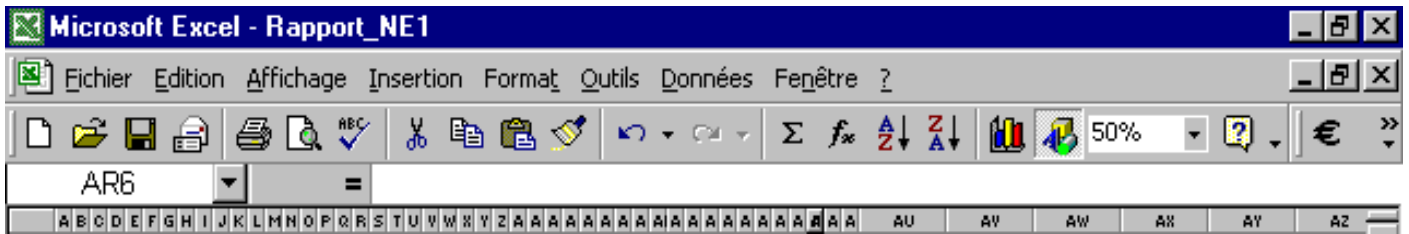


6.3.3.2. Changing the drawing

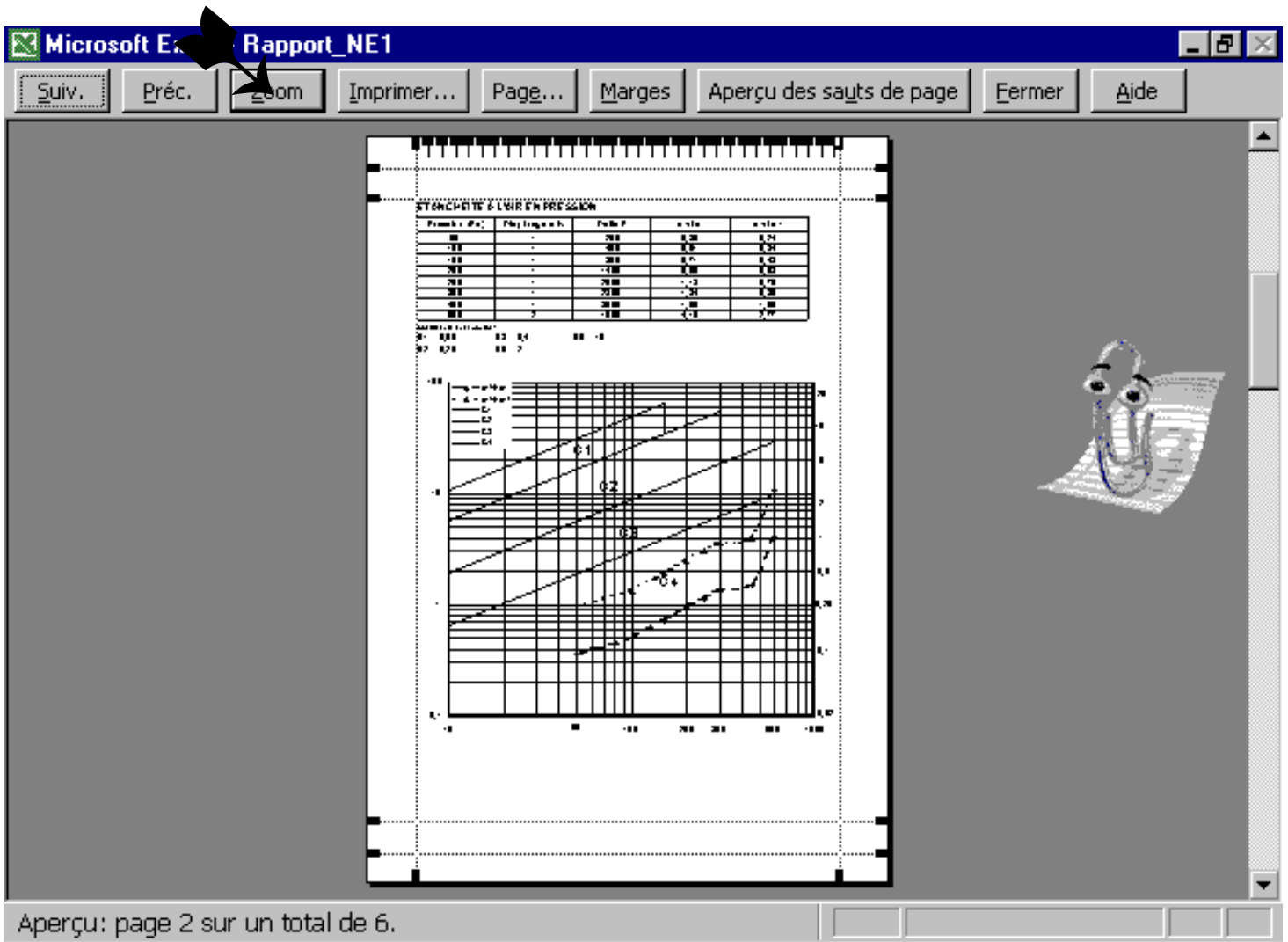
It is possible to change the details of the drawing, even to modify certain drawings with the “design” of Excel. See the button on the toolbar.



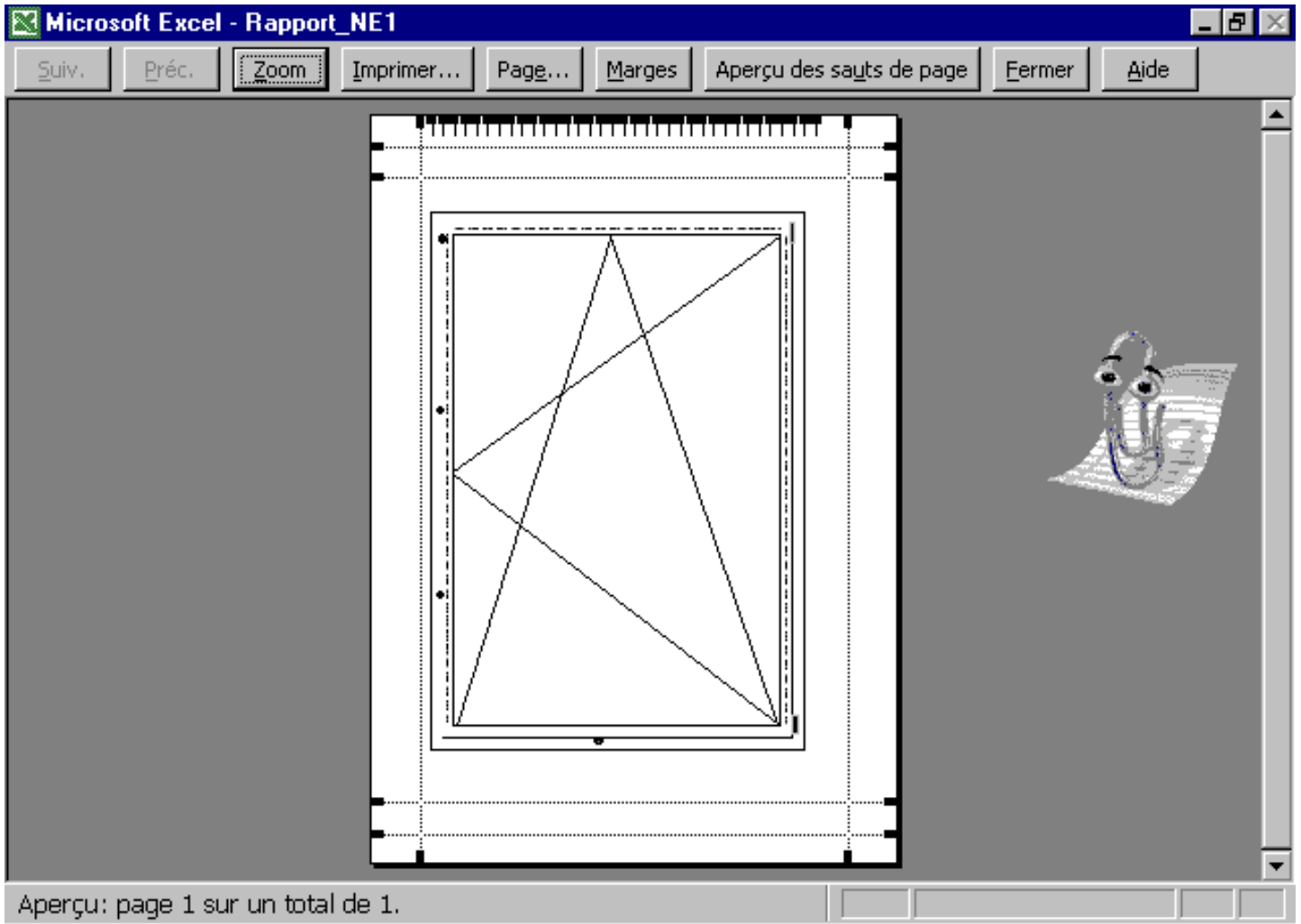
Sample of **tool bar**;



With the drawing aids it is possible to move some items out of the impression zone.



6.4. Print the report with a drawing

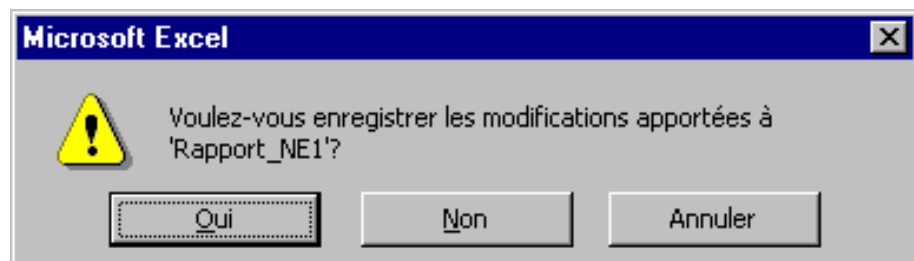


Print sample ; to print a drawing go to print preview.

6.5. Save the report

6.5.1. Closing EXCEL

Closing EXCEL the following question is asked:

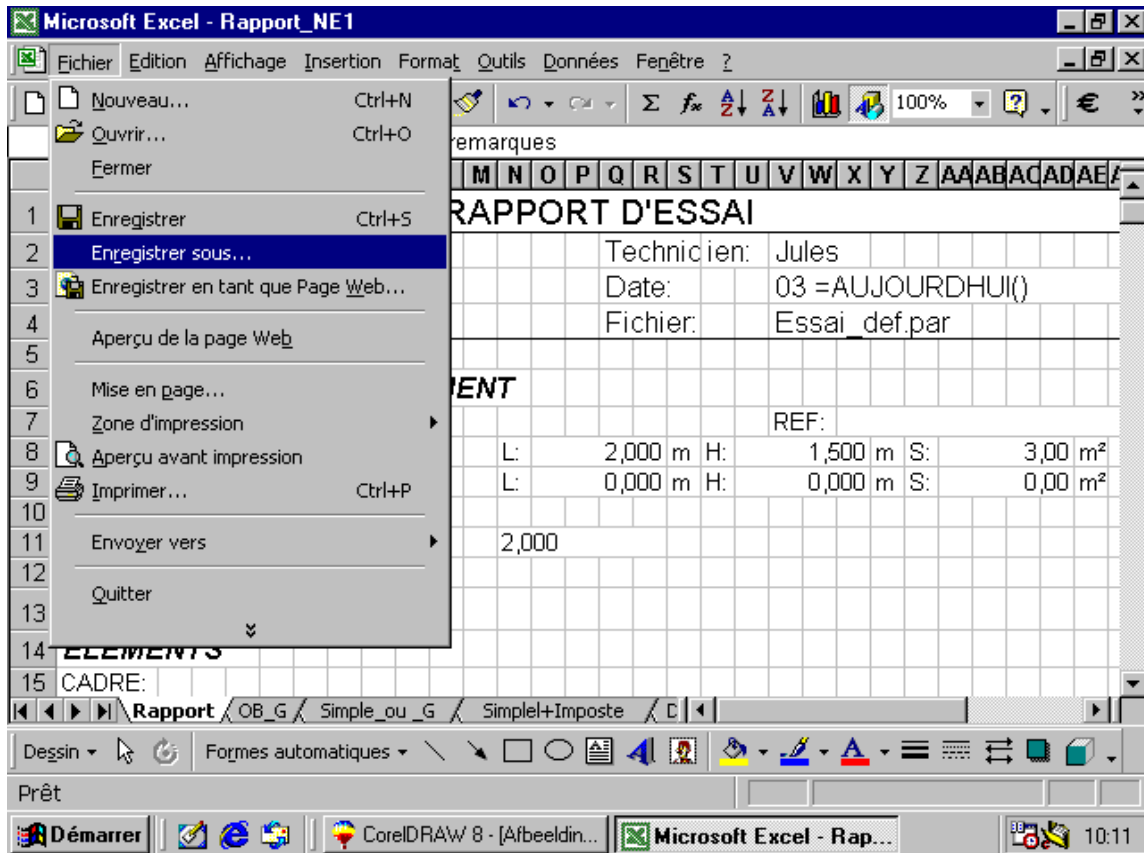


If one would save the report under the name "**Report_EN1**" ; **there is no problem.**
If a second file is opened you have to save it under a different name. If the file need not to be saved then answer No.

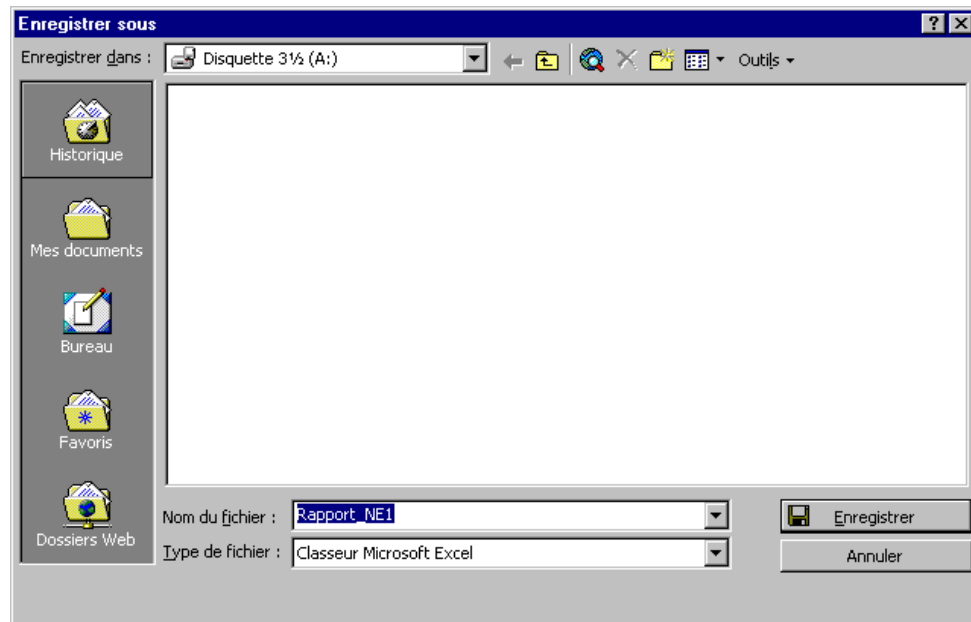
6.5.2. Save under EXCEL

If the report has to be saved; then “save it as”

The pull down menu under “file” is needed.



The computer stations are opened.



Depending where you want to save it is possible to open all the media on the computer with:

